

Claims

1 1. In an Asynchronous Transfer Mode (ATM) system composed of at least a first data
2 network (10) comprising a plurality of switching nodes interconnected by connection lines and
3 including end switching nodes each being connected to at least a Data Transmission equipment
4 (DTE) and being used either as an entry border node (22) when it is connected to a source DTE
5 (18) or an exit border node (28) when it is connected to a destination DTE (20), said network
6 using a routing protocol of the type wherein a best route between a source DTE and a destination
7 DTE is determined in a control point associated with said entry border node to which is
8 connected said source DTE and wherein a set-up message is sent by said entry border node, and a
9 second data network (12) including at least one DTE to be used as destination DTE in an
10 exchange of data with a source DTE connected to said first data network and being
11 interconnected with said first data network by means of at least two links (14, 16) not supporting
12 said routing protocol; method for extending the crankback procedure over all said system
13 consisting, when the exit border node of said first data network receives a clearing message on
14 one of said links indicating that said set-up message has been rejected because said best route is
15 blocked anywhere in said second data network, in building a crankback information element to
16 be added to said clearing message for enabling said entry border node to find an alternate route
17 avoiding the portion of said best route which is blocked.

1 2. The method according to claim 1, wherein said crankback information element includes a
2 blocked transit type which can be "preceding", "node" or "succeeding", a blocked transit
3 identifier depending on said blocked transit type and a crankback cause.

1 3. The method according to claim 2, wherein said blocked transit type is "preceding" and
2 said blocked transit identifier identifies the node preceding the link not supporting said routing
3 protocol as being blocked.

1 4. The method according to claim 1, 2 or 3, wherein said links not supporting said routing
2 protocol are Interim Inter switch Protocol (IISP) links.

1 5. The method according to claim 1, 2 or 3, wherein said links not supporting said routing
2 protocol are UNI links.

1 6. Asynchronous Transfer Mode (ATM) system composed of at least a first data network
2 (10) comprising a plurality of switching nodes interconnected by connection lines and including
3 end switching nodes each being connected to at least a Data Transmission equipment (DTE) and
4 being used either as an entry border node (22) when it is connected to a source DTE (18) or an
5 exit border node (28) when it is connected to a destination DTE (20), said network using a
6 routing protocol of the type wherein a best route between a source DTE and a destination DTE is
7 determined in a control point associated with said entry border node to which is connected said
8 source DTE and wherein a set-up message is sent by said entry border node, and a second data
9 network (12) including at least one DTE to be used as destination DTE in an exchange of data
10 with a source DTE connected to said first data network and being interconnected with said first
11 data network by means of at least two links (14, 16) not supporting said routing protocol;
12 said system further comprising means for extending the crankback procedure over all said system
13 in building, when the exit border node of said first data network receives a clearing message on
14 one of said links indicating that said set-up message has been rejected because said best route is
15 blocked anywhere in said second data network, a crankback information element to be added to
16 said clearing message for enabling said entry border node to find an alternate route avoiding the
17 portion of said best route which is blocked.

1 7. The system according to claim 6, wherein said crankback information element includes a
2 blocked transit type which can be "preceding", "node" or "succeeding", a blocked transit
3 identifier depending on said blocked transit type and a crankback cause.

1 8. The system according to claim 7, wherein said blocked transit type is "preceding" and said
2 blocked transit identifier identifies the node preceding the link not supporting said routing
3 protocol as being blocked.

1 9. The system according to claim 6, 7 or 8, wherein said links not supporting said routing
2 protocol are Interim Inter switch Protocol (IISP) links.

1 10. The system according to claim 6, 7 or 8, wherein said links not supporting said routing
2 protocol are UNI links.

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10 11. For use in a system having a first network and a second network, said first network
having at least one entry border node connected to a source node, said first network adhering to a
routing protocol which includes the use of a crankback procedure to inform the entry border node
of a path failure within the first network, said second network having at least one exit border
node connected to a destination node, said second network including at least some elements
which do not use a crankback procedure, said first and second networks being interconnected
through a plurality of links connecting a plurality of border nodes within each network, a method
of extending the crankback procedure to cover path failures in said second network, said method
being implemented in a border node in said first network on a proposed path between the source
node and the destination node and comprising the steps of:

11 monitoring messages returned from the second network relating to the proposed path for
12 a clearing message indicative of a failure in the proposed path anywhere in the second
13 network;

14 in response to detection of said clearing message, generating a crankback information
15 element;

16 modifying said clearing message by adding said generated crankback information
17 element; and

18 forwarding said modified clearing message to the entry border node.

1 12. The method according to claim 11 wherein said crankback information element includes
2 a blocked transit type field, a blocked transit identifier field and a crankback cause field.

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